

# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E / 5					R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. LIGHTWEIGHT TORPEDO DEVELOPMENT/0604610N					
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total P.E. Cost	15.773	7.929	9.297	8.684	7.966	2.895	2.996	1.747	CONT.	CONT.
Lightweight Hybrid Torpedo /V2234	13.829	7.929	9.297	8.684	7.966	2.895	2.996	1.747	CONT.	CONT.
Lightweight Hybrid Torpedo /V2435	1.944	0	0	0	0	0	0	0	CONT.	CONT.
Quantity of RDT&E Articles & cost	5.067	0.282	0.200	0.200						
A. (U) Mission Description and Budget Item Justification: The funding is to design, integrate and test the Lightweight Hybrid Torpedo (MK54 MOD 0) by taking advantage of current USN investments in torpedo hardware and torpedo technology. The torpedo will be comprised of hardware and software from the MK 46 Torpedo, MK 50 Torpedo, and MK 48 ADCAP Torpedo. The Lightweight Hybrid Torpedo will provide performance improvements in shallow water, littoral, counter-measure filled environments. The Engineering Development Model (EDM) contract was awarded to Raytheon Systems Company (formerly Hughes Aircraft Company) in June 1996. Current contract to deliver twenty-one (21) EDM units (delivery of test articles will be completed in early FY00) to support the in-water test program.										
1. (U) FY 1998 ACCOMPLISHMENTS:  • (U) (\$5.067) Continued LHT Engineering and Manufacturing Development Contract.  • (U) (\$3.226) Continued development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE), to support LHT.  • (U) (\$3.537) Continued development of tactical and signal processing software.  • (U) (\$0.761) Conducted simulation efforts in support of tactical software development.  • (U) (\$3.182) Performed Lightweight torpedo system engineering efforts.										

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<div>2. (U) FY 1999 PLAN:</div> <div><div><div></div><div>(U) (\$0.282) Continue LHT Engineering and Manufacturing Development Contract.</div></div><div><div></div><div>(U) (\$1.715) Continue development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.</div></div><div><div></div><div>(U) (\$2.322) Continue development of tactical and signal processing software.</div></div><div><div></div><div>(U) (\$1.403) Continue simulation and initiate in-water test program.</div></div><div><div></div><div>(U) (\$2.190) Continue Lightweight torpedo system engineering efforts.</div></div><div><div></div><div>(U) (\$0.017) Portion of extramural program is reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</div></div></div> <div>3. (U) FY 2000 PLAN:</div> <div><div><div></div><div>(U) (\$0.200) Continue LHT Engineering and Manufacturing Development Contract to provide support to Navy in-water test program.</div></div><div><div></div><div>(U) (\$0.801) Continue development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.</div></div><div><div></div><div>(U) (\$1.856) Continue development of tactical and signal processing software.</div></div><div><div></div><div>(U) (\$4.048) Continue simulation and in-water developmental test program.</div></div><div><div></div><div>(U) (\$2.392) Continue Lightweight torpedo system engineering efforts.</div></div></div>		
B. (U) Program Change Summary: (\$ in millions)		

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APPROPRIATION/BUDGET ACTIVITY RDT&E / 5		R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. LIGHTWEIGHT TORPEDO DEVELOPMENT/0604610N								
		<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>						
(U) FY 1999 President's Budget:		18.615	8.106	9.292						
(U) Appropriated Value:		19.302	8.106							
(U) Adjustments to FY 1998 Appropriated Value/FY 1999 President's Budget:		-3.529	-0.177	-0.005						
(U) FY 2000/01 PRES Budget Submit:		15.773	7.929	9.297						
(U) Funding: FY98: \$3.529M reduction due to -\$0.662M for Congressional Undistributed reductions, -\$0.267M for SBIR,-\$1.100M for FY 1998 Below Threshold Reprogramming (BTR), and -\$1.500M for FY98 Congressional Rescission.										
FY99: Reduction of -\$0.177M due to Congressional Undistributed Reductions.										
FY00: Reduction of -\$0.005M due to reduction of -\$0.067M due to Congressional Undistributed Reductions and \$0.062M addition due to minor pricing adjustments.										
(U) Schedule: Not applicable.										
(U) Technical: Not applicable.										
C. (U) Other Program Funding Summary (\$ in millions)										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To Complete	Total Cost
Torpedo MK46 MODS (WPN / PE 0204228N/ BA3 / P-1 Item 321500)										
	0.266	0.015	28.699	25.204	29.610	35.534	37.833	38.809	296.192	491.881
Note: FY00 and Total Cost includes \$1.7M for MK46 SLEP Kit Assembly completion. Adjusted values are \$27.0M (FY00) and \$490.2M (Total Cost).										
(U) RELATED RDT&E:										
Vertical Launch ASROC (RDT&E,N / PE 0604355N / BA5)										
	8.488	0	0	0	0	0	0	0	0	8.488
D. (U) Acquisition Strategy: The EMD contract is currently held by Raytheon Systems Company (formerly Hughes Aircraft Company). The contract was awarded as a Cost-Plus-Award Fee in June 1996 and was recently converted to Cost-Plus-Fixed Fee in April 1998.										

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E. Schedule Profile:								
Lightweight Hybrid Torpedo Planning Schedule								
Development & Upgrades Lightweight Hybrid	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05
	▲	ENGINEERING TESTS			TECHEVAL OPEVAL			
	PDR	▲	▲	▲	▲	▲		
		CDR	(55 RUNS)		(45 RUNS)	(30 RUNS)	HYBRID IOC	
						▲	PRE-PLANNED PRODUCT IMPROVEMENT	

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Exhibit R-3 Cost Analysis								Date: February 1999				
APPROPRIATION/BUDGET ACTIVITY : RDT&E,N/5				PROGRAM ELEMENT NAME AND NUMBER: LIGHTWEIGHT TORPEDO DEVELOPMENT/0604610N				PROJECT NAME AND NUMBER:                      Lightweight Hybrid Torpedo/V2234				
Cost Categories: Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
	C,CPFF	Raytheon Systems Company	18.777	0.282	1 APR	0.200	01 OCT			0.200	19.459 *	25.559**
Ancillary Hardware Development												
	WR	NUWC Newport/Keyport	CONT.	1.715	24 NOV	0.801	01 OCT			CONT.	CONT.	N/A
Systems Engineering												
	WR	NUWC Newport/Keyport	CONT.	1.630	24 NOV	1.832	01 OCT			CONT.	CONT.	N/A
Software Development												
	WR	NUWC Newport	CONT.	2.322	24 NOV	1.856	01 OCT			CONT.	CONT.	N/A
Subtotal Product Development			CONT.	5.949		4.689				CONT.	CONT.	
Remarks: * Total Cost of \$19.459M represents the planned use of appropriated funds for this program. ** A contract modification to the existing EMD contract was processed in December 1998 which exchanged \$6.1M (Consideration) for Government non-excess personal property (permitted under 40 USC 481(c)). This exchange of non-excess torpedoes for consideration (\$6.1M) has been added to the current total cost of \$19.5M which increases the total estimated target value of the contract to \$25.559M.												
Subtotal Support												
Remarks: None.												

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Exhibit R-3 Project Cost Analysis  
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APPROPRIATION/BUDGET ACTIVITY : RDT&E,N/5			PROGRAM ELEMENT NAME AND NUMBER: LIGHTWEIGHT TORPEDO DEVELOPMENT/0604610N						PROJECT NAME AND NUMBER: Lightweight Hybrid Torpedo/V2234			
Cost Categories (Tailor to WBS or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY 99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System, Test & Evaluation												
	WR	COMOPTEVFOR	CONT.	0.035	6 NOV	0.066	01 OCT			CONT.	CONT.	N/A
	WR	NUWC Newport/Keyport	CONT.	1.385	24 NOV	3.982	01 OCT			CONT.	CONT.	N/A
Subtotal T&E			CONT.	1.420		4.048				CONT.	CONT.	
Remarks: None.												
Program Management Support	Various	Various	CONT.	0.560	MISC.	0.560	MISC.			CONT.	CONT.	
Subtotal Management			CONT.	0.560		0.560				CONT.	CONT.	
Remarks: None.												
Total Cost			CONT.	7.929		9.297				CONT.	CONT.	
Remarks: None.												

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